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ABSTRACT

The effects of a systematic study period, peer tutoring, and contractual consequences on the spelling performance of six junior high learning disabled students were investigated. Ss were scoring poorly or inconsistently on unit spelling tests. An intervention period of 2 to 4 weeks consisted of daily exposure to words through a peer tutor and contract contingencies. Results indicated substantial increases in accuracy of unit spelling words in all Ss. Among plausible explanations for the change in spelling performance were positive effects of peer tutoring or teacher attention. A followup study is recommended to determine which factor was most effective for the Ss' improved performance. (Author/CL)

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The Effects of a Systematic Study Interval Peer Tutoring, and Mutual Behavioral Contracting on Unit Spelling Accuracy of Adolescent Learning Disabled Students

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ABSTRACT

The effects of a systematic study period, peer tutoring, and contractual consequences on unit spelling tests were investigated. Individual scores on unit spelling tests were recorded for six junior high learning disabled students who were scoring poorly or inconsistently on unit spelling tests. An intervention period of daily exposure to words through a peer tutor and contract contingencies were employed within a multiple baseline design across subjects. Results indicated substantial increases in unit spelling words accuracy in all students. Since any one of the three independent variables could have accounted for the increased spelling proficiency, a follow-up study was suggested to determine which factor was the most effective for these learning disabled students.

The Effects of a Systematic Study Interval, Peer Tutoring, and Mutual Behavioral Contracting on Unit Spelling Accuracy of Adolescent Learning Disabled Students

A vast array of systematic antecedent and consequent behavioral events have been utilized to promote student performance in the academic target areas. Using reinforcement as consequent events to improve academic study behavior, response rate, and accuracy has been demonstrated to be highly effective in several studies (Blaker & Feldman, 1982; Britt & Feldman, 1982; Speltz, Shimamura, & McReynolds, 1982: Trap, Milner-Davis, Joseph, & Cooper, 1978). A study in the area of mathematics by McKenzie, Clark, Kothera, and Benson, (1968) examined the effects of grades and allowances contingent upon the academic behaviors of a class of children with learning disabilities. They reported that when subsequent events were used within a systematic framework, the rate of task completion was positively accelerated. Subsequent events have also been successfully employed in the area of spelling (e.g., Lovitt, Guppy, & Blattner, 1968). Lovitt and his associates sought to determine the functional relationship between spelling accuracy and contingent leisure time. The results of this study, conducted with a class of fourth grade students revealed that spelling performance improved when leisure time was systematically employed as a subsequent event.

Another method of improving student academic performance, which may be as potent as a contingently administered subsequent event, is the use of an antecedent event. Lovitt and Curtiss (1968) used an antecedent event with a learning disabled student to influence his mathematics response accuracy rate. The results indicated that the student's correct answer rate increased and his error rate decreased as a result of his verbalization of the problems before making a written response. Antecedent events, such as input organization strategies (Spitz, 1973), have also been effective when applied to mathematics

computation accuracy (e.g., Britt & Feldman, 1982).

The use of peer-tutoring has also been used as an instructional method in the classroom situation. Several studies have implemented this procedure as a successful method when applied to the academic areas (e.g., Stowitschek, Hecimovic, Stowitschek, & Shores, 1982). Horst (1931) described a tutoring procedure in Latin in which high school honor students tutored other high school students who had performed poorly in the first grading period of the semester. Of the 160 students who received tutoring, the majority showed improvement in their Latin grades. Caditz (1969) described a program in which high school students who had good grades in algebra tutored others who had poor grades, and found some improvement in the algebra grades of tutored students.

Antecedent events have previously been used on mathematics performance (Lovitt & Curtiss, 1968) but have not been generally applied to spelling performance in terms of accuracy. Peer tutoring was found to be effective in such academic areas as mathematics and foreign language (e.g., Caditz, 1963; Harris & Sherman, 1973; Horst, 1931), but has not been extensively used to manipulate the progress of students on spelling study periods (e.g., Ollendick, Matson, Esveldt-Dawson, & Shapiro, 1980). Consequences in respect to spelling performance has been researched (e.g., Lovitt, Guppy, & Blattner, 1968) as well as paired with peer tutoring and mediational strategies, i.e., response-dependent modeling, (e.g., Stowitschek et al., 1982). However, the effective utilization of contingency contracting and the application of peer tutoring within a less restrictive instructional environment i.e., public school resource classroom versus a research laboratory in a psychiatric hospital (e.g., Stowitschek et al., 1982) remains relatively unsupported.

The purpose of this study was to examine, within a multiple baseline paradign, the effects of simultaneously imposing a systematic study interval coupled with peer tutoring and contingency reinforcement procedures on unit spelling accuracy of adolescent learning disabled students within a community school setting.

METHOD

Setting and Subjects

The study was conducted in a public school located in a large metropolitan area in the southwest part of the country. The school was situated in a relatively depressed economic quadrant of the city and drew its student population from the immediate community.

Six junior high school students across grade levels seven, eight, and nine, participated in the study. They were all classified as learning disabled according to state department of education guidelines and were assigned to a resource classroom for remediation of language-related deficiencies.

The students were split into three equal groups for spelling instruction. Group One included "T", a 14 year old eighth grade male student studying word list A, and "M" a 15 year old ninth grade female student studying word list B. The second group included "C", a 14 year old eighth grade female student studying word list B, and "H", a 15 year old ninth grade male student studying word list C. The third group consisted of "R", a 13 year old seventh grade female student studying word list C, and "MR", a 13 year old seventh grade male student studying word list C. These students scored from a 2.3 grade level to a 6.1 grade level on a standardized spelling achievement test, thus placing them from two and a half years to six and a half years below grade level in spelling performance.

Materials

Weekly spelling units, consisting of words on three separate grade level word lists, were selected by the teacher from the Dolch Word List, Lippincott Spellers, and teacher-constructed survival word lists. The spelling instructional level over the three groups varied from the sixth grade level (word list A) to the second grade level (word list C).

Behavior Measure and Reliability

The dependent measure employed in the present investigation was a percentage count on the number of words each student spelled correctly on a weekly unit written examination. The permanent product data was administered and tabulated by the teacher.

Procedure

A multiple baseline across subjects design (Cooper, 1981) was selected to demonstrate the effectiveness of the intervention when successively introduced to each of the three groups.

Entry level data were taken for six weeks to determine which students required specialized instruction to improve their spelling study habits. Six students were selected for the study due to poor achievement or erratic performance on unit spelling tests.

During the baseline period, the six students studied, each week, 14 spelling words, leveled within their ability range. These words were discussed in class, written five times each by the student, and written into a sentence to reinforce the words' meanings. A pretest was given on Wednesday to let the student calculate his progress and determine which words would require further scrutiny. The unit spelling test was then administered on Friday after a five minute independent study period.

Prior to intervention commencement for each group, the students were administered a reinforcement survey to determine the most effective available

consequences. A reinforcement menu was constructed from the six students' reinforcement surveys and subsequently employed in conjunction with the contingency contracts. The six students were then asked to choose another student currently working on the same word list who would help them study their spelling words for five minutes each day, Monday through Friday. All tutors were also classified as learning disabled students. Both the students and the tutors were required to sign contracts, valid for the duration of the study. Contracts containing consequences, rewarding from 7 words correct up to 14 words correct, were signed by the students. The tutor's contract made the specification that he would only be rewarded if his student were to score 14 words correct. This was designed so that the tutor would work diligently with his student for a sustained period of five minutes, without unnecessary talking or other off-task behaviors.

Five weeks of baseline data were recorded for the first group of students, "T" and "M", before intervention was undertaken. They were each tutored by a peer for the five minute study interval each day at the beginning of the class period. The unit spelling test was administered immediately following the tutoring period on Friday of each week. This data was recorded for four consecutive weeks. To accurately insure that only five minutes were used to execute the tutoring session, the tutor sat facing the wall clock so that he could watch the second hand. Each session was started five minutes after the tardy bell, to give uniformity to the study. The teacher also timed the sessions in the same manner and announced the termination of each five minute tutored study period.

The baseline and intervention protocols were uniformly administered to the students in the three spelling groups. Utilizing the multiple baseline framework, the baseline phase lasted five weeks for the first group, six weeks

for the second group, and seven weeks for the third group. The intervention phase was completed in four weeks for group one, three weeks for group two, and two weeks for group three. The entire investigation, excluding the six week period for entry level determination and student selection, was accomplished in nine weeks.

RESULTS

All six students improved their spelling performance accuracy in terms of number of words and percentage of words spelled correctly. In the first group, "T" had a mean accuracy score of 10 words (71%) on the unit spelling test over a five week baseline period while "M" averaged nine words correct (64%) over the same period. Over a four week intervention phase, "T" improved his mean accuracy score to 13.5 words (96%) while "M" improved her average to 12.3 words (88%) spelled correctly over the four examinations. Accuracy gains for "T" showed an improvement of 25 per cent while "M" improved 24 per cent.

In the second group, "C" had a mean accuracy score of 12 words (86%) on the unit spelling tests over a six week baseline period while "H" averaged eight words correct (57%) during the same period. Over a three week intervention phase, "C" improved her mean accuracy score to 13.7 words (98%) while "H" improved his average to 11 words (79%) spelled correctly over the three examinations. Accuracy gains for "C" showed an improvement of 12 per cent while "H" improved 22 per cent.

In the third group, "MR" had a mean accuracy score of 4.6 words (33%) on the unit spelling tests over a seven week baseline period while "R" averaged six words correct (44%) during the same period. Over a two week intervention period, "MR" improved his mean accuracy score to 7 words (50%) while "R" improved her average to 12.5 (89%) spelled correctly over the two

examination. Figure 1. presents the spelling accuracy data by frequency count for the six students. Figure 2. presents the accuracy data in percentage form.

Insert Figure 1. About Here

Insert Figure 2. About Here

Overall increases for each of the six students in spelling accuracy over baseline functioning were 14 per cent (C), 32 per cent (H), 35 per cent (T), 36 per cent (M), 53 per cent (MR), and 102 per cent (R). The composite increase for the six students was 45 per cent over baseline spelling accuracy.

DISCUSSION

Intervention in this study provided several functions: (1) the student was exposed to his/her unit spelling words on a daily basis; (2) peer tutoring was used to motivate the student to learn his/her unit spelling words; and (3) reinforcements were provided by the teacher through the utilization of contingency contracts for the number of words spelled correctly by the student. The results clearly indicate, within the multiple baseline framework, that these three treatment procedures were extremely effective in producing substantial changes in spelling accuracy across the six students over a period of two to four weeks.

Due to the complex composition of the intervention utilized in this study, the observed performance increase on the unit spelling tests could be attributed to any one of the three intervention components or any combination of the components. There sre several other plausible explanations for the notable change in the students' spelling performance. As opposed to being exposed to his/her spelling words every other day during baseline, the student was exposed through the peer tutoring sessions to his/her words

on a daily basis. This procedural change may have produced possible practice effects through increased frequency of word exposure (i.e., memory imprinting). However, an anticipated positive, monotonic trend, typical of an exposure effect (Feldman, 1979), is not demonstrated in Figures 1 and 2.

The peer tutoring component may have accounted for most of change in spelling accuracy among the six students, yet the particular aspect of the tutoring that may have accounted for the change is unable to be identified in the present study. The use of peer pressure could have been indirectly imposed upon the students through the peer-tutoring sessions. The tutor wished to be reinforced and therefore encouraged his/her student toward perfection. As a result, the student may have been subtly pressured into studying harder in order to please his/her tutor.

Peer tutoring was successful in this study even though the tutor had not been previously instructed on tutoring procedures before the informal peer tutoring sessions had begun. Harris and Sherman (1973) noted that tutoring was effective in the absence of specified training procedures for tutors. This finding and the results of the present study suggest that some students, including learning disabled students, already have skills effective for enhancing the academic performance of other students. Similar unstructured tutoring programs have been reported to be effective (e.g., Horst, 1931; Caditz, 1963; Hassinger & Via, 1969; Landrum & Martin, 1970; Taylor, 1969).

There is a possibility that teacher attention reinforced the students through the use of contingency contracts. More attention than usual was devoted to each student in the writing and signing of contracts. The teacher had individually asked each student if he/she agreed with the terms of the contract. The teacher also administered the contingencies

after each week's unit spelling test. The reinforcement of teacher attention was again applied when contracts were renegotiated half-way through the intervention phase. Hall, Lund, and Jackson (1968) investigated the effects of contingent teacher attention on study behavior. A prior reinforcement period resulted in sharply increased study rates. This could explain to some extent the increase in student spelling proficiency.

A follow up study utilizing a combination of a multiple baseline across subjects design, sequential treatments design (Cooper, 1981), and a reversal design, should be able to partial out the independent effects of the systematic study interval, peer tutoring, and the behavioral contracts.

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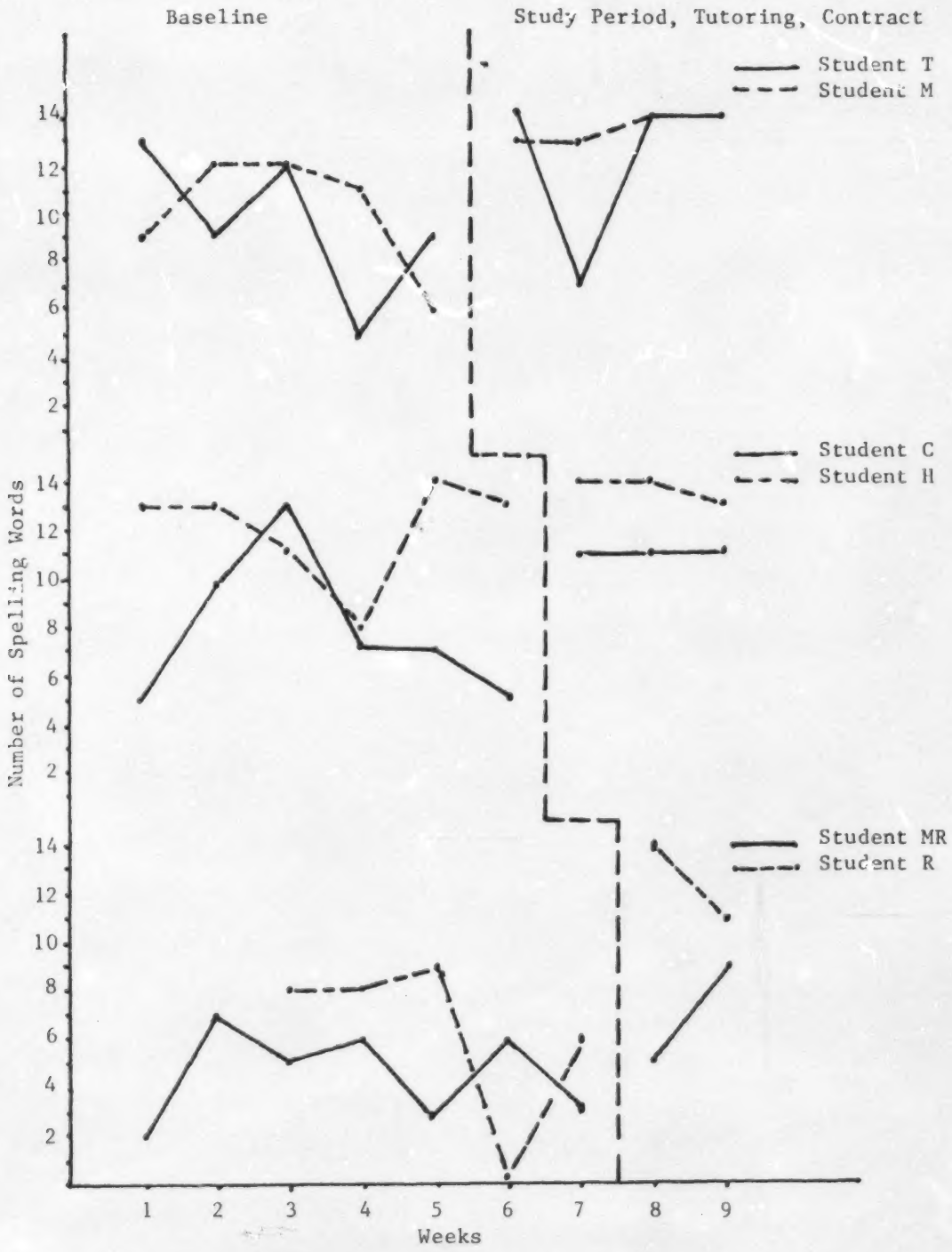

Figure 1. Subjects' frequency counts of correct spelling words over nine weeks.

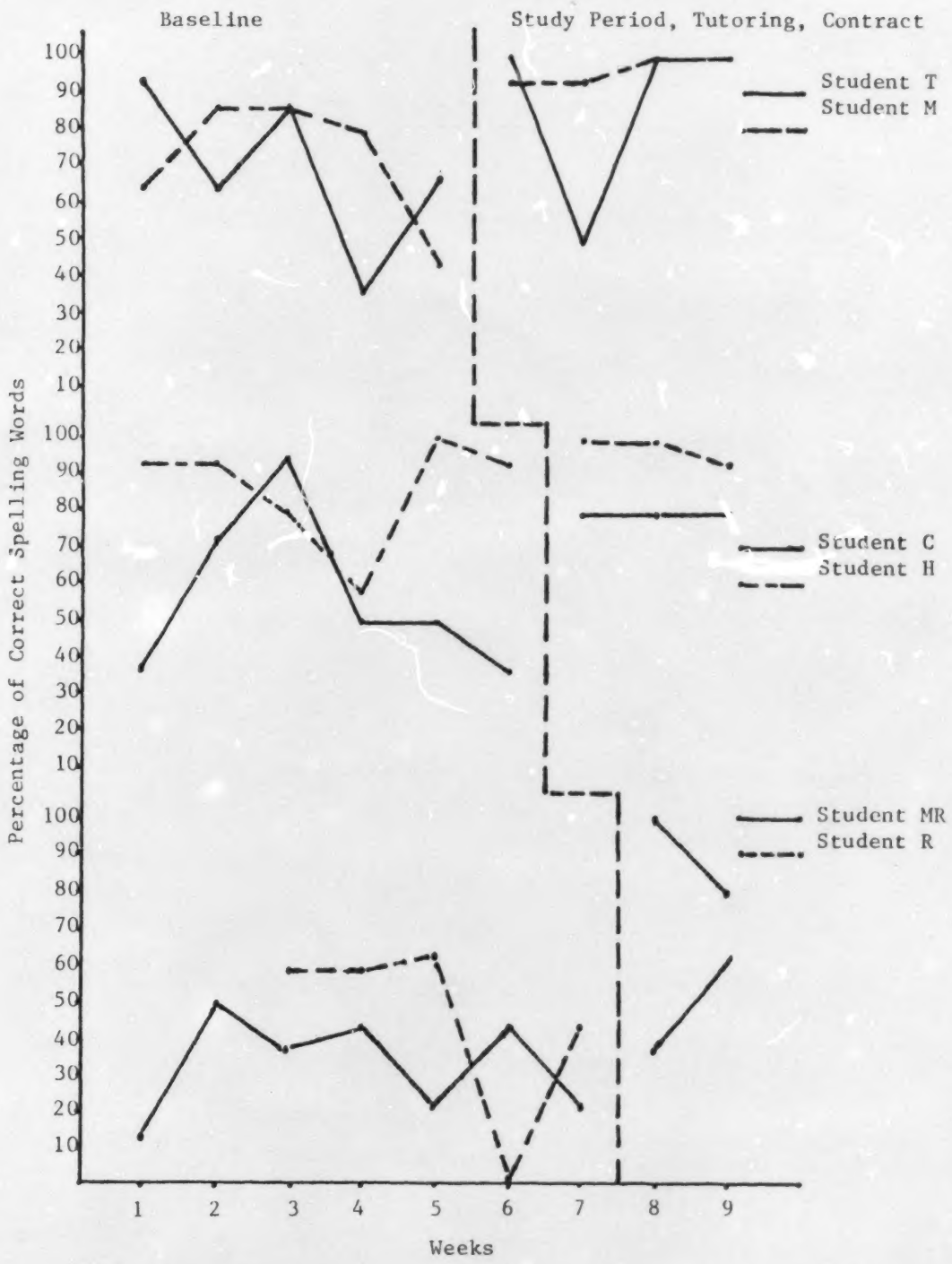

Figure 2. Subjects' percentage of correct spelling words over nine weeks.